stabilizer. Yield was 50 g of ethylene/hexene copolymer corresponding to an activity of 5.0 g/g·hr·MPa.

[100] What is claimed is:

Document Evaluation

1. A functionalized catalyst support comprising a particulated, solid support material having chemically bonded thereto a conjugated or non-conjugated diene or alkyne containing ligand group.

2. A functionalized catalyst support according to claim 1 having a chemical structure of the following formula:

$So(D_d)$

wherein:

So is a particulated, solid support material;

D is a conjugated or non-conjugated diene or alkyne containing ligand attached to the particulated solid support containing up to 20 atoms other than hydrogen; and

d is a positive number that is equal to the number of D groups attached to the substrate, So.

3. A functionalized catalyst support according to claim 1 or 2 wherein the support is silica, and d is chosen to provide a concentration of D groups on the substrate from 1×10^{-5} μ mole/gram to 1 mmole/ gram, more preferably from 0.1 μmole/gram to 500 μmole/g.

4. A functionalized catalyst support according to claim 3, wherein So possesses non-ionic, Lewis acid functionality a', of the formula $-Me_mK_k$, on the surface thereof, wherein:

Me, is a Group 2, 12 or 13 metal, especially Al, bonded to the substrate, So,

K is an extractable or exchangeable, anionic ligand group, especially a hydrocarbyl or halohydrocarbyl group of up to 20 atoms, not counting hydrogen, and

m and k are selected to provide charge balance.

5. A supported catalyst composition comprising the reaction product of:

(a) the functionalized catalyst support of claim 1, and

(b) a Group 3-10 or Lanthanide metal complex containing a substituent which reacts with the functionalized catalyst support to thereby form a supported catalyst composition that is capable of activation to form an active polymerization catalyst for the polymerization of addition polymerizable monomers.

6. A supported catalyst composition according to claim 5, wherein the Group 3-10 metal complex contains at least one π-bonded anionic ligand group which is a conjugated or non-conjugated, cyclic or non-cyclic dienyl group, an allyl group, aryl group, or a substituted derivative thereof.

7. A supported catalyst composition according to claim 6, wherein the π-bonded anionic ligand group is a cyclopentadienyl group or a derivative thereof.

8. A supported catalyst composition according to any one of claims 5-7 additionally comprising an activator capable of activating the Group 3-10 of Lanthanide metal complex so as to be catalytically active for the polymerization of addition polymerizable monomers.

9. A polymerization process comprising contacting one or more addition polymerizable monomers under gas phase or slurry polymerization conditions with a catalyst composition according to Claim 8.

10. A process according to claim 9, wherein ethylene is polymerized, optionally with one or more comonomers to form an ethylene homopolymer or copolymer.